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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P. O. Box 272400
Fort Collins, Colorado 80527-2400

PATENT APPLICATION 2100

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OIPE JC141 AUG 08 2002 PATENT & TRADEMARK OFFICE

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Robert Luffel, et al. **Confirmation No.:** 9485

Application No.: 09/337,802 **Examiner:** D. Davis

Filing Date: 06-22-1999 **Group Art Unit:** 2652

Title: APPARATUS FOR TRANSLATING A CARTRIDGE ACCESS DEVICE

COMMISSIONER FOR PATENTS
Washington, D.C. 20231

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TRANSMITTAL OF APPEAL BRIEF

Sir:

Transmitted herewith in **triplicate** is the Appeal Brief in this application with respect to the Notification of Non-Compliance filed on **July 15, 2002**.

The fee for filing this Appeal Brief was previously submitted on May 2, 2002 and charged to Deposit Account 08-2025 in the amount of $320.00. No additional fee is required.

(X) Applicant believes that no extension of term is required.

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Typed Name: Bruce E. Dahl, Esq.

Signature: Bruce E. Dahl

Respectfully submitted,

By Bruce E. Dahl

Bruce E. Dahl, Reg. No.33,670
Attorney/Agent for Applicant(s)
DAHL & OSTERLOTH, L.L.P.
555 Seventeenth Street, Suite 3405
Denver, CO 80202-3937
Telephone: (303) 291-3200
Facsimile: (303) 291-3201

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:		
	Robert Luffel, et al.	Examiner: D. Davis
Serial No.:	09/337,802	Group Art Unit: 2652
Filing Date:	June 22, 1999	Confirmation No.: 9485
Title:	APPARATUS FOR TRANSLATING A CARTRIDGE ACCESS DEVICE	
Attorney Dkt.:	HP 10980296-1	

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I hereby certify that the foregoing **Transmittal of Appeal Brief (in triplicate); Appeal Brief including Appendix A and Appendix B (in triplicate); and post cards for return by the United States Patent and Trademark Office;** are all being deposited with the United States Postal Service addressed to the Assistant Commissioner for Patents, Box AF, Washington, D.C. 20231, via Express Mail No. EV 156182179 US, on this 8th day of August, 2002.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In Re Application of:	)	
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LUFFEL, Robert, W., *et al.*	)	
	)	Examiner: Davis, D.
Serial No. 09/337,802	)	
	)	Group Art Unit: 2652
Filing Date: June 22, 1999	)	
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APPEAL BRIEF

Bruce E. Dahl*
DAHL & OSTERLOTH, L.L.P.
555 Seventeenth Street, Suite 3405
Denver, CO 80202
Telephone: (303) 291-3200

*Counsel of Record

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Cases: Page

Statutes and Regulations:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
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APPEAL BRIEF

To: The Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

This Appeal Brief is submitted in response to the final rejections of the claims dated October 22, 2001. A Notice of Appeal was filed on March 5, 2002.

REAL PARTY IN INTEREST

The assignee of the entire right, title, and interest in the patent application is Hewlett-Packard Company.

RELATED APPEALS AND INTERFERENCES

There is a related appeal of another United States patent application, serial no. 09/371,708, filed August 9, 1999, that may directly affect, or be directly affected by, or have a bearing on, the Board's decision. Application serial no. 09/371,708 is a continuation-in-part application of the application that

is the subject of this appeal. There are currently no related interferences known to Appellant, Appellant's legal representative, or the assignee which will directly affect, or be directly affected by, or have a bearing on, the Board's decision.

STATUS OF THE CLAIMS

Claims 1 and 3-24 are pending in the application. Claims 1 and 3-24 are rejected. The rejections of claims 1 and 3-24 are appealed. Specifically, claims 1 and 3-24 stand provisionally rejected under the judicially created doctrine of double patenting. Claims 1, 3-7, 12-19, and 24 stand rejected under Section 102 as being anticipated by Tadokoro. Claims 8-11 and 20-23 are not specifically rejected over Tadokoro, thus are allowable over Tadokoro.

STATUS OF AMENDMENTS

An amendment, dated December 14, 2001, was filed in response to the final office action, dated October 22, 2001. In an advisory action, paper no. 9, dated February 13, 2002, the examiner confirmed that claims 1 and 3-24 continue to stand rejected. It is not known whether the amendment was entered upon filing of the Notice of Appeal. That is, in paragraph 7 of the advisory action, the examiner failed to check either box (a) (that the amendment will not be entered) or box (b) (that the amendment will be entered). However, Appellants assume for the purposes of this appeal brief that the amendment was not entered, since it is the examiner's position that the proposed amendment raises new issues.

SUMMARY OF INVENTION

The present invention is directed to translation apparatus 10 (Figures 1 - 3; p. 4, l. 27 - p. 18, l. 5) for moving a cartridge access device 12 (Figures 1 - 3; p. 4, l. 27 - p. 7, l. 14; p. 9, l. 1 - p. 10, l. 5) along a displacement path 14 (Figures 1 and 2, p. 4, l. 27 - p. 5, l. 14; p. 5, l. 25 - 32; p.6, l. 18 - 24; p. 9, l. 1 - 15; p. 10, l. 6 - 13). In one embodiment, the translation apparatus 10 may comprise a first

elongate gear rack 20 (Figures 1 - 3, p. 4, l. 32 - p. 7, l.14; p. 10, l. 6 - 36; p. 11, l. 25 - 35) aligned along the displacement path 14 and a second elongate gear rack 22 (Figures 1 - 3; p. 4, l. 35 - p. 7, l. 14; p. 11, l. 1 - 35) positioned in spaced-apart relation to the first elongate gear rack 20, so that the second elongate gear rack 22 is aligned along the displacement path 14. A first elongate guide member 50 (Figures 1 - 3; p. 5, l. 32 - p. 6, l. 10; p. 7, l. 1 - 9; p. 10, l. 16 - 23; p. 11, l. 25 - 35) that is integral with the first elongate gear rack 20 also extends along the displacement path 14. A first bearing member 54 (Figure 3, p. 5, l. 32 - p. 6, l. 10; p. 16, l. 2 - p. 17, l. 6; p. 17, l. 21 - p. 18, l. 2) mounted to the cartridge access device 12 engages the first elongate guide member 50. A first drive pinion 24 (Figures 2 and 3, p. 5, l. 3 - 14; p. 6, l. 18 - p. 7, l. 14; p. 13, l. 32 - p. 14, l. 14) mounted to the cartridge access device 12 engages the first elongate gear rack 20. A second drive pinion 28 (Figures 1- 3; p. 5, l. 3 - 14; p. 6, l. 18 - p. 7, l. 14; p. 13, l. 32 - p. 14, l. 14) mounted to the cartridge access device 12 engages the second elongate gear rack 22. A pinion drive apparatus 32 (Figures 1- 3; p. 5, l. 10 - 14; p. 6, l. 18 - p. 7, l. 14; p. 14, l. 32 - p. 16, l. 1) operatively associated with the first and second drive pinions 24 and 28 rotates the first and second drive pinions 24 and 28 to move the cartridge access device 12 along the first and second elongate gear racks 20 and 22.

A significant advantage of the translation apparatus 10 of the present invention (p. 7, l. 15 - p. 8, l. 10) is that it provides a simple and convenient way to move the cartridge access device 12 in a lateral direction (i.e., along the displacement path 14). Moreover, the integral arrangement of the guide member 50 and gear rack 20 provides for greatly improved performance and ease of manufacture. The integral arrangement of the guide member 50 and the gear rack 20 also eliminates the need to align the guide member with the gear rack. Yet another advantage of the translation apparatus 10 (p. 8, l. 11 - 21)is that it is readily expandable in the direction of the displacement path 14. For example, the displacement path 14 may be extended in length by simply positioning additional elongate gear racks adjacent the ends of the elongate gear racks 20, 22, 36, and 38, in the manner best seen in Figure 4. Such an arrangement allows for the convenient expansion of a data storage system that embodies the

translation apparatus 10 according to the present invention.

The invention as claimed is summarized below with reference numerals and reference to the specification and drawings. All references are shown in the application at least where indicated herein.

(Claim 1) Translation apparatus (10, Figures 1 - 3; p. 4, l. 27 - p. 18, l. 5) for moving a cartridge access device (12, Figures 1 - 3; p. 4, l. 27 - p. 7, l. 14; p. 9, l. 1 - p. 10, l. 5) along a displacement path (14, Figures 1 and 2, p. 4, l. 27 - p. 5, l. 14; p. 5, l. 25 - 32; p.6, l. 18 - 24; p. 9, l. 1 - 15; p. 10, l. 6 - 13), comprising:

a first elongate gear rack (20, Figures 1 - 3, p. 4, l. 32 - p. 7, l.14; p. 10, l. 6 - 36; p. 11, l. 25 - 35) aligned along the displacement path (14), said first elongate gear rack (20) having a first end and a second end;

a first elongate guide member (50, Figures 1 - 3; p. 5, l. 32 - p. 6, l. 10; p. 7, l. 1 - 9; p. 10, l. 16 - 23; p. 11, l. 25 - 35) integral with said first elongate gear rack (20) and extending along the displacement path (14) substantially between the first and second ends of said first elongate gear rack (20);

a first bearing (54, Figure 3, p. 5, l. 32 - p. 6, l. 10; p. 16, l. 2 - p. 17, l. 6; p. 17, l. 21 - p. 18, l. 2) mounted to the cartridge access device (12), said first bearing (54) engaging said first elongate guide member (50);

a second elongate gear rack (22, Figures 1 - 3; p. 4, l. 35 - p. 7, l. 14; p. 11, l. 1 - 35) aligned along the displacement path (14) and positioned in spaced-apart relation to said first elongate gear rack (20), said second elongate gear rack (22) having a first end and a second end;

a first drive pinion (24, Figures 2 and 3, p. 5, l. 3 - 14; p. 6, l. 18 - p. 7, l. 14; p. 13, l. 32 - p. 14, l. 14) mounted to the cartridge access device (12), said first drive pinion (24) engaging said first elongate gear rack (20);

a second drive pinion (28, Figures 1- 3; p. 5, l. 3 - 14; p. 6, l. 18 - p. 7, l. 14; p. 13, l. 32 -

p. 14, l. 14) mounted to the cartridge access device (12), said second drive pinion (28) engaging said second elongate gear rack (22); and

pinion drive apparatus (32, Figures 1- 3; p. 5, l. 10 - 14; p. 6, l. 18 - p. 7, l. 14; p. 14, l. 32 - p. 16, l. 1) operatively associated with said first and second drive pinions (24, 28), said pinion drive apparatus (32) rotating said first and second drive pinions (24, 28) to move the cartridge access device (12) between the first and second ends of said first and second elongate gear racks (20, 22).

(Claim 2) Claim 2 is canceled without prejudice to the subject matter contained therein.

(Claim 3) The translation apparatus (10) of claim 1, wherein said first elongate guide member (50) comprises first and second opposed bearing surfaces (78 and 80, respectively, Figure 2, p. 10, l. 20 - 23; p. 16, l. 2 - p. 17, l.6) and wherein said first bearing (54) mounted to the cartridge access device (12) slidably engages the first and second opposed bearing surfaces (78 and 80) of said first elongate guide member (20).

(Claim 4) The translation apparatus (10) of claim 3, wherein said second elongate gear rack (22) includes a second elongate guide member (52, Figures 1 and 3; p. 5, l. 32 - p. 6, l. 10; p. 7, l. 1 - 9; p. 11, l. 1 - 35) that extends along the displacement path (14) substantially between the first and second ends of said second elongate gear rack (22) and wherein said translation apparatus (10) further comprises a second bearing (56, Figure 3; p. 5, l. 32 - p. 6, l. 10; p. 16, l. 9 - p. 17, l. 6; p. 17, l. 21 - p. 18, l. 2) mounted to the cartridge access device (12), said second bearing (56) engaging said second elongate guide member (52).

(Claim 5) The translation apparatus (10) of claim 4, wherein said second elongate guide member (52) comprises first and second opposed bearing surfaces (86 and 88, respectively, Figure 3, p. 11, l. 7 - 13; p. 16, l. 9 - p. 17, l.6) and wherein said second bearing (56) mounted to the cartridge access device (12) slidably engages the first and second opposed bearing surfaces (86 and 88) of said second elongate guide member (52).

(Claim 6) The translation apparatus (10) of claim 5, further comprising a third bearing (60, Figure 3, p. 6, l. 11 - 17; p. 7, l. 7 - 9; p. 17, l. 7 - p. 18, l. 2) mounted to the cartridge access device (12), said third bearing (60) contacting said first elongate gear rack (20) and allowing the cartridge access device (12) to move along the displacement path (14).

(Claim 7) The translation apparatus (10) of claim 6, wherein said third bearing (60) comprises a wheel.

(Claim 8) Translation apparatus (10, Figures 1 - 3; p. 4, l. 27 - p. 18, l. 5) for moving a cartridge access device (12, Figures 1 - 3; p. 4, l. 27 - p. 7, l. 14; p. 9, l. 1 - p. 10, l. 5) along a displacement path (14, Figures 1 and 2, p. 4, l. 27 - p. 5, l. 14; p. 5, l. 25 - 32; p.6, l. 18 - 24; p. 9, l. 1 - 15; p. 10, l. 6 - 13), comprising:

a first elongate gear rack (20, Figures 1 - 3, p. 4, l. 32 - p. 7, l.14; p. 10, l. 6 - 36; p. 11, l. 25 - 35) aligned along the displacement path (14), said first elongate gear rack (20) having a first end and a second end;

a second elongate gear rack (22, Figures 1 - 3; p. 4, l. 35 - p. 7, l. 14; p. 11, l. 1 - 35) aligned along the displacement path (14) and positioned in spaced-apart relation to said first elongate gear rack (20), said second elongate gear rack (22) having a first end and a second end;

a third elongate gear rack (36, Figures 1-3, p. 5, l. 15 - 24; p. 7, l. 19 - p. 8, l.4; p. 11, l.

36 - p. 12, l.34; p. 13, l. 26 - 31) positioned in generally parallel, spaced-apart relation to said first elongate gear rack (20);

a fourth elongate gear rack (38, Figures 1-3, p. 5, l. 15 - 24, p. 7, l. 19 - p. 8, l. 4; p.11, l. 36 - p. 12, l. 7; p. 12, l. 35 - p. 13, l. 31) positioned in generally parallel, spaced-apart relation to said second elongate gear rack (22) so that said first, second, third, and fourth elongate gear racks (20, 22, 36, and 38) define a generally rectangular, parallelopiped configuration with said first and third elongate gear racks (20 and 36) defining a bottom side of the generally rectangular, parallelopiped configuration and said second and fourth elongate gear racks (22 and 38) defining a top side of the generally rectangular, parallelopiped configuration;

a first drive pinion (24, Figures 2 and 3, p. 5, l. 3 - 14; p. 6, l. 18 - p. 7, l. 14; p. 13, l. 32 - p. 14, l. 14) mounted to the cartridge access device (12), said first drive pinion (24) engaging said first elongate gear rack (20);

a second drive pinion (28, Figures 1- 3; p. 5, l. 3 - 14; p. 6, l. 18 - p. 7, l. 14; p. 13, l. 32 - p. 14, l. 14) mounted to the cartridge access device (12), said second drive pinion (28) engaging said second elongate gear rack (22); and

pinion drive apparatus (32, Figures 1- 3; p. 5, l. 10 - 14; p. 6, l. 18 - p. 7, l. 14; p. 14, l. 32 - p. 16, l. 1) operatively associated with said first and second drive pinions (24 and 28), said pinion drive apparatus (32) rotating said first and second drive pinions (24 and 28) to move the cartridge access device (12) between the first and second ends of said first and second elongate gear racks (20 and 22).

(Claim 9) The translation apparatus (10) of claim 8, further comprising:

a third drive pinion (40, Figures 2 and 3; p. 5, l. 20 - 24; p. 6, l. 30 - p. 7, l. 14; p. 14, l. 15 - 31) mounted to the cartridge access device (12) and operatively associated with said pinion drive apparatus (32), said third drive pinion (40) engaging said third elongate gear rack (36); and

a fourth drive pinion (42, Figures 1-3; p. 5, l. 20 - 24; p. 6, l. 30 - p. 7, l. 14; p. 14, l. 15 - 31) mounted to the cartridge access device (12) and operatively associated with said pinion drive apparatus (32), said fourth drive pinion (42) engaging said fourth elongate gear rack (38).

(Claim 10) The translation apparatus (10, 110, Figure 4)) of claim 9, further comprising:

a fifth elongate gear rack (not shown specifically, but see the arrangement illustrated in Figure 4 and described at p. 18, l. 26 - 29) having a first end and a second end, the first end of said fifth elongate gear rack being mounted adjacent the second end of said first elongate gear rack (e.g., 20, 120, Figure 4) so that said fifth elongate gear rack is aligned along the displacement path (e.g., 14, 114, Figure 4); and

a sixth elongate gear rack (e.g., 122', Figure 4, p. 18, l. 22 - 32) having a first end and a second end, the first end of said sixth elongate gear rack (122') being mounted adjacent the second end of said second elongate gear rack (e.g., 22, 122, Figure 4) so that said sixth elongate gear rack (122') is aligned along the displacement path (e.g., 14, 114, Figure 4).

(Claim 11) The translation apparatus (10, 110, Figure 4) of claim 10, further comprising:

a seventh elongate gear rack (136', Figure 4, p. 18, l. 22 - 32) having a first end and a second end, the first end of said seventh elongate gear rack (136') being mounted adjacent the second end of said third elongate gear rack (e.g., 36, 136, Figure 4) so that said seventh elongate gear rack (136') is aligned along the displacement path (e.g., 14, 114, Figure 4); and

an eighth elongate gear rack (138', Figure 4, p. 18, l. 22 - 32) having a first end and a second end, the first end of said eighth elongate gear rack (138') being mounted adjacent the second end of said fourth elongate gear rack (e.g., 38, 138, Figure 4) so that said eighth elongate gear rack (138') is aligned along the displacement path (14, 114, Figure 4).

(Claim 12) The translation apparatus (10) of claim 1, wherein said pinion drive apparatus (32) comprises:

a motor (19, Figures 2 and 3, p. 14, l. 32 - p. 15, l. 12) having a shaft;

a worm (21, Figures 2 and 3, p. 15, l. 4 - 12) attached to the shaft of said motor (19); and

a worm gear (23, Figures 2 and 3, p. 15, l. 4 - 12) operatively connected to said first and second drive pinions (24 and 28), said worm gear (23) mounted to engage said worm (21) mounted to the shaft of said motor (19).

(Claim 13) Translation apparatus (10, Figures 1 - 3; p. 4, l. 27 - p. 18, l. 5) for moving a cartridge access device (12, Figures 1 - 3; p. 4, l. 27 - p. 7, l. 14; p. 9, l. 1 - p. 10, l. 5) along a displacement path (14, Figures 1 and 2, p. 4, l. 27 - p. 5, l. 14; p. 5, l. 25 - 32; p.6, l. 18 - 24; p. 9, l. 1 - 15; p. 10, l. 6 - 13), comprising:

a first elongate gear rack (20, Figures 1 - 3, p. 4, l. 32 - p. 7, l.14; p. 10, l. 6 - 36; p. 11, l. 25 - 35) aligned along said displacement path (14), said first elongate gear rack (20) having a first end and a second end;

a first elongate guide member (50, Figures 1 - 3; p. 5, l. 32 - p. 6, l. 10; p. 7, l. 1 - 9; p. 10, l. 16 - 23; p. 11, l. 25 - 35) integral with said first elongate gear rack (20) so that said first elongate guide member (50) extends along the displacement path (14);

a second elongate guide member (52, Figures 1 and 3; p. 5, l. 32 - p. 6, l. 10; p. 7, l. 1 - 9; p. 11, l. 1 - 35) extending along the displacement path (14) and positioned in spaced-apart relation to said first elongate guide member (50);

a first drive pinion (24, Figures 2 and 3, p. 5, l. 3 - 14; p. 6, l. 18 - p. 7, l. 14; p. 13, l. 32 - p. 14, l. 14) mounted to the cartridge access device (12), said first drive pinion (24) engaging said first elongate gear rack (20);

a first bearing (54, Figure 3, p. 5, l. 32 - p. 6, l. 10; p. 16, l. 2 - p. 17, l. 6; p. 17, l. 21 -

p. 18, l. 2) mounted to the cartridge access device (12), said first bearing (54) engaging said first elongate guide member (50);

a second bearing (56, Figure 3; p. 5, l. 32 - p. 6, l. 10; p. 16, l. 9 - p. 17, l. 6; p. 17, l. 21 - p. 18, l. 2) mounted to the cartridge access device (12), said second bearing (56) engaging said second elongate guide member (52); and

pinion drive apparatus (32, Figures 1- 3; p. 5, l. 10 - 14; p. 6, l. 18 - p. 7, l. 14; p. 14, l. 32 - p. 16, l. 1) operatively associated with said first drive pinion (24), said pinion drive apparatus (32) rotating said first drive pinion (24) to move the cartridge access device (12) along the displacement path (14).

(Claim 14) The translation apparatus (10) of claim 13, further comprising:

a second elongate gear rack (22, Figures 1 - 3; p. 4, l. 35 - p. 7, l. 14; p. 11, l. 1 - 35) aligned along said displacement path (14) and positioned in spaced-apart relation to said first elongate gear rack (20); and

a second drive pinion (28, Figures 1- 3; p. 5, l. 3 - 14; p. 6, l. 18 - p. 7, l. 14; p. 13, l. 32 - p. 14, l. 14) mounted to the cartridge access device (12), said second drive pinion (28) engaging said second elongate gear rack (22).

(Claim 15) The translation apparatus (10) of claim 14, wherein said second elongate guide member (52) comprises an integral portion of said second elongate gear rack (22).

(Claim 16) The translation apparatus (10) of claim 14, wherein said first elongate guide member (50) comprises first and second opposed bearing surfaces (78 and 80, respectively, Figure 2, p. 10, l. 20 - 23; p. 16, l. 2 - p. 17, l.6) and wherein said first bearing (54) mounted to the cartridge access device (12) slidably engages the first and second opposed bearing surfaces (78 and 80) of said first elongate guide

member (50).

(Claim 17) The translation apparatus (10) of claim 16, wherein said second elongate guide member (52) comprises first and second opposed bearing surfaces (86 and 88, respectively, Figure 3, p. 11, l. 7 - 13; p. 16, l. 9 - p. 17, l.6) and wherein said second bearing (56) mounted to the cartridge access device (12) slidably engages the first and second opposed bearing surfaces (86 and 88) of said second elongate guide member (52).

(Claim 18) The translation apparatus (10) of claim 17, further comprising a third bearing (60, Figure 3, p. 6, l. 11 - 17; p. 7, l. 7 - 9; p. 17, l. 7 - p. 18, l. 2) mounted to the cartridge access device (12), said third bearing (60) contacting said first elongate gear rack (20) and allowing the cartridge access device (12) to move along the displacement path (14).

(Claim 19) The translation apparatus (10) of claim 18, wherein said third bearing (60) comprises a wheel.

(Claim 20) The translation apparatus (10) of claim 18, further comprising:

a third elongate gear rack (36, Figures 1-3, p. 5, l. 15 - 24; p. 7, l. 19 - p. 8, l.4; p. 11, l. 36 - p. 12, l.34; p. 13, l. 26 - 31) positioned in generally parallel, spaced-apart relation to said first elongate gear rack (20); and

a fourth elongate gear rack (38, Figures 1-3, p. 5, l. 15 - 24, p. 7, l. 19 - p. 8, l. 4; p.11, l. 36 - p. 12, l. 7; p. 12, l. 35 - p. 13, l. 31) positioned in generally parallel, spaced-apart relation to said second elongate gear rack (22) so that said first, second, third, and fourth elongate gear racks (20, 22, 36, and 38) define a generally rectangular, parallelopiped configuration with said first and third elongate gear racks (20 and 36) defining a bottom side of the generally

rectangular, parallelopiped configuration and said second and fourth elongate gear racks (22 and 38) defining a top side of the generally rectangular, parallelopiped configuration.

(Claim 21) The translation apparatus (10) of claim 20, further comprising:

a third drive pinion (40, Figures 2 and 3; p. 5, l. 20 - 24; p. 6, l. 30 - p. 7, l. 14; p. 14, l. 15 - 31) mounted to the cartridge access device (12) and operatively associated with said pinion drive apparatus (32), said third drive pinion (40) engaging said third elongate gear rack (36); and

a fourth drive pinion (42, Figures 1-3; p. 5, l. 20 - 24; p. 6, l. 30 - p. 7, l. 14; p. 14, l. 15 - 31) mounted to the cartridge access device (12) and operatively associated with said pinion drive apparatus (32), said fourth drive pinion (42) engaging said fourth elongate gear rack (38).

(Claim 22) The translation apparatus (10, 110, Figure 4) of claim 21, further comprising:

a fifth elongate gear rack (not shown specifically, but see the arrangement illustrated in Figure 4 and described at p. 18, l. 26 - 29) having a first end and a second end, the first end of said fifth elongate gear rack being mounted adjacent the second end of said first elongate gear rack (e.g., 20, 120, Figure 4) so that said fifth elongate gear rack is aligned along the displacement path (e.g., 14, 114, Figure 4); and

a sixth elongate gear rack (122', Figure 4, p. 18, l. 22 - 32) having a first end and a second end, the first end of said sixth elongate gear rack being mounted adjacent the second end of said second elongate gear rack (e.g., 22, 122, Figure 4) so that said sixth elongate gear rack (122') is aligned along the displacement path (e.g., 14, 114, Figure 4).

(Claim 23) The translation apparatus (10, 110, Figure 4) of claim 22, further comprising:

a seventh elongate gear rack (136', Figure 4, p. 18, l. 22 - 32) having a first end and a second end, the first end of said seventh elongate gear rack (136') being mounted adjacent the

second end of said third elongate gear rack (e.g., 36, 136, Figure 4) so that said seventh elongate gear rack (136') is aligned along the displacement path (e.g., 14, 114, Figure 4); and

an eighth elongate gear rack (138', Figure 4, p. 18, l. 22 - 32) having a first end and a second end, the first end of said eighth elongate gear rack (138') being mounted adjacent the second end of said fourth elongate gear rack (e.g., 38, 138, Figure 4) so that said eighth elongate gear rack (138') is aligned along the displacement path (e.g., 14, 114, Figure 4).

(Claim 24) Translation apparatus (10, Figures 1 - 3; p. 4, l. 27 - p. 18, l. 5) for moving a cartridge access device (12, Figures 1 - 3; p. 4, l. 27 - p. 7, l. 14; p. 9, l. 1 - p. 10, l. 5) along a displacement path (14, Figures 1 and 2, p. 4, l. 27 - p. 5, l. 14; p. 5, l. 25 - 32; p.6, l. 18 - 24; p. 9, l. 1 - 15; p. 10, l. 6 - 13), comprising:

an elongate gear rack (e.g., 20, Figures 1 - 3, p. 4, l. 32 - p. 7, l.14; p. 10, l. 6 - 36; p. 11, l. 25 - 35) aligned along the displacement path (14);

guide means (e.g., 50, Figures 1 - 3; p. 5, l. 32 - p. 6, l. 10; p. 7, l. 1 - 9; p. 10, l. 16 - 23; p. 11, l. 25 - 35) integral with said elongate gear rack (20) for guiding the cartridge access device (12) along the displacement path (14);

a drive pinion (e.g., 24, Figures 2 and 3, p. 5, l. 3 - 14; p. 6, l. 18 - p. 7, l. 14; p. 13, l. 32 - p. 14, l. 14) mounted to the cartridge access device (12), said drive pinion (24) engaging said elongate gear rack (20); and

pinion drive means (32, Figures 1- 3; p. 5, l. 10 - 14; p. 6, l. 18 - p. 7, l. 14; p. 14, l. 32 - p. 16, l. 1) operatively associated with said drive pinion (24) for rotating said first drive pinion (24) to move the cartridge access device (12) along the displacement path (14).

ISSUES

1. Whether claims 1 and 3-24 are unpatentable under the judicially-created doctrine of double patenting over claims 1-24 of Application Serial No. 09/371,708.

2. Whether claims 1, 3-7, 12-19, and 24 are unpatentable under 35 U.S.C. §102(e) as being unpatentable over Tadokoro.

GROUPING OF THE CLAIMS

None of the claims stand or fall together. Each claim is patentable on independent grounds as set forth in the ARGUMENT.

ARGUMENT

Opening Statement

The Tadokoro reference does not disclose at least a guide member that is *integral* with a gear rack. To the contrary, Tadokoro utilizes *separate* guide members and gear racks. Accordingly, Tadokoro cannot support the examiner's anticipation rejections under Section 102.

Appellant's Invention

Appellants' invention is directed to translation apparatus for moving cartridge access devices along arrays of data cartridges stored in data storage systems. In one embodiment, the translation apparatus involves first and second elongate gear racks that are positioned in spaced-apart relation and aligned along a displacement path. The first elongate gear rack includes an integral elongate guide member that also extends along the displacement path. A first bearing member mounted to the cartridge access device engages the first elongate guide member. A first drive pinion mounted to the cartridge access device engages the first elongate gear rack. A second drive pinion mounted to the cartridge access device engages the second elongate gear rack. A pinion drive apparatus operatively associated with the

first and second drive pinions and rotates the first and second drive pinions to move the cartridge access device along the first and second elongate gear racks.

The integral gear rack and guide member arrangement of the present invention provides for improved positioning accuracy of the cartridge access device, eliminates the need for separate guide members and gear racks, and eliminates the need for such separate guide members and gear racks to be aligned with respect to one another.

Background

Many different types of data storage and handling systems exist and are being used to store data cartridges at known locations and to retrieve a desired cartridge so that data may be written to or read from the data cartridge. Such data storage and handling systems are often referred to as "juke box" data storage systems, particularly if they can accommodate a large number of individual data cartridges.

While the data cartridges may be arranged within the data storage system in any of a wide variety of configurations, many juke box data storage systems are designed so that the data cartridges are stored in one or more horizontal rows or arrays. If so, the data storage system is usually provided with a positioning apparatus for moving a cartridge access device along the array of cartridges so that the cartridge access device can access selected data cartridges stored in the array. Depending on the particular system, the cartridge access device may comprise a cartridge engaging assembly or "picker" which may be adapted to engage the selected data cartridge, withdraw it from its storage location, and carry it to a cartridge read/write device located elsewhere within the data storage system. The read/write device may then be used to read data from or write data two the cartridge. Once the read/write operation is complete, the cartridge engaging assembly or picker may withdraw the data cartridge from the read/write device and return it to the appropriate location within the cartridge storage array. In another type of system, the cartridge access device may comprise the read/write device itself, in which case the data cartridge may be read from or written to without the need to carry the data cartridge to a separate

read/write device.

Regardless of the particular type of cartridge access device that is utilized by the data storage system, the positioning system used to move the cartridge access device along the cartridge storage array must be capable of moving the cartridge access device along the cartridges stored in the array so that the desired data cartridge may be accessed. One type of positioning system, often referred to as a "lead-screw" system, mounts the cartridge access device on a lead-screw which, when turned, moves the cartridge access device back and forth along the array of cartridges. While such lead-screw positioning systems are being used, they are not without their problems. For example, in such a system the cartridge access device may be cantilevered on the lead-screw which may result in excessive transverse or rotational movement of the cartridge access device. Such excessive movement reduces positional accuracy and may make it difficult for the cartridge access device to reliably engage the desired data cartridge on a repeated basis.

Partly in an effort to solve the foregoing problems, positioning systems have been developed which utilize separate guide rails or tracks to guide the cartridge access device along the array of cartridges. The cartridge access device is mounted to the separate guide rails or tracks and the lead-screw is then used only to move the cartridge access device to the desired location. Alternatively, a wire-rope (i.e., cable) drive system may be used to move the cartridge access device. While such systems generally provide for increased positional accuracy of a simple cantilevered type of lead-screw arrangement, they are still not without their disadvantages. For example, the guide rail or track assemblies usually comprise machined components finished to a high degree of precision, which adds to the overall cost of the data storage system. Moreover, the guide rail or track assemblies are often difficult to align and may become mis-aligned during subsequent shipping or movement of the data storage system. If the mis-alignment is substantial, it may be necessary to re-align and re-calibrate the positioning system before the data storage system can be placed in operation.

Consequently, a need remains for a positioning system for moving a cartridge access device

along an array of cartridges that provide increased positional accuracy to reduce errors due to mis-alignment of the cartridge access device. Such increased positional accuracy should be achieved with a minimum number of components to maximize reliability and reduce cost, yet not require the use of expensive, precision-machined components and guide rails. Additional advantages could be realized by reducing the amount of time required to align and calibrate the assembly during production and by reducing the likelihood of subsequent mis-alignment due to shipping or rough handling. Ideally, the positioning system should require little space, thereby allowing for a reduction in the overall size of the data storage system or allowing for an increased number of data cartridges to be stored within the system.

Discussion of the Reference

Tadokoro, *et al.*, U.S. Patent No. 6,166,877 (Tadokoro). The Tadokoro reference discloses a cassette auto changer system that includes, among other things, a selection member for selecting between a plurality of cassettes. More specifically, with respect to the embodiment illustrated in Figures 19-21, Tadokoro discloses a cassette transfer mechanism 2 with upper and lower horizontally arranged gear rack members 32 disposed so as to engage upper and lower guide rails 8 positioned on each of the consoles A-D. A vertical pillar 30 is supported between the upper and lower guide rails 8 so as to be moveable in the horizontal plane. Upper and lower end portions 30a and 30b attached to each end of the pillar 30 include a plurality of guide rollers 33 for pressingly engaging the guide rails 8 at three sides thereof to provide stable support and rolling movement for the cassette transport mechanism 2. A pulley 35 mounted on the drive shaft of motor 34 engages a timing belt 36 which also engages a drive pulley 37 on rotatable shaft 38. Drive gears 39 are engaged with adjacent reduction gears 40 at each side thereof. Smaller pinion gears 41 are coaxially disposed at upper sides of the upper reduction gears 40 and lower sides of the lower reduction gears 40 to engage gear teeth formed on the upper and lower rack members 32.

ISSUE 1: WHETHER CLAIMS 1 AND 3-24 ARE UNPATENTABLE UNDER THE JUDICIALLY-CREATED DOCTRINE OF DOUBLE PATENTING.

In the first office action, paper no. 4, dated May 8, 2001, the examiner *provisionally* rejected claims 1-24 under the judicially-created doctrine of double patenting over claims 1-24 of co-pending patent application serial no. 09/371,708. In responding to that office action, Appellants acknowledged the examiner's *provisional* double patenting rejection, and indicated that they would respond to the rejection by filing a terminal disclaimer upon the indication that the claims are otherwise allowable.

In the final office action, paper no. 7, dated October 22, 2002, the examiner repeated the identical provisional double patenting rejection. The examiner's provisional double patenting rejection is not ripe for consideration on appeal since it is provisional in nature. That is, since no claims have yet issued, it is not possible to make a meaningful determination as to whether a double patenting rejection would be warranted. Consequently, Appellants' request that the double patenting rejection be held in abeyance until claims of the '708 application are allowed.

ISSUE 2: WHETHER CLAIMS 1, 3-7, 12-19, AND 24 ARE UNPATENTABLE UNDER 35 U.S.C. §102(e) AS BEING ANTICIPATED BY TADOKORO.

Claims 1, 3-7, 12-19, and 24 currently stand rejected under Section 102(e) as being anticipated by Tadokoro. Appellants note that the examiner did not reject claims 8-11 and 20-23 over Tadokoro. Consequently, Appellants regard claims 8-11 and 20-23 as being allowable over Tadokoro. Stated another way, by failing to specifically reject claims 8-11 and 20-23 over any prior art reference, the examiner has failed to establish the required *prima-facie* case of unpatentability of claims 8-11 and 20-23.

Legal Standard For Rejecting Claims
Under 35 U.S.C. §102

The standard for lack of novelty, that is, for "anticipation," under 35 U.S.C. §102 is one of strict identity. To anticipate a claim for a patent, a single prior source must contain all its essential elements.

Hybritech, Inc. v. Monoclonal Antibodies, Inc., 231 USPQ 81, 90 (Fed. Cir. 1986). Invalidity for anticipation requires that all of the elements and limitations of the claims be found within a single prior art reference. *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 18 USPQ2d 1001 (Fed. Cir. 1991). Every element of the claimed invention must be literally present, arranged as in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) (finding that the jury had been erroneously instructed that anticipation may be shown by equivalents, a legal theory that is pertinent to obviousness under Section 103, not to anticipation under Section 102). "The identical invention must be shown in as complete detail as is contained in the patent claim." MPEP §2131 (7th Ed. 1998) (citing *Richardson, supra*). Furthermore, functional language, preambles, and language in "whereby," "thereby," and "adapted to" clauses cannot be disregarded. *Pac-Tec, Inc. v. Amerace Corp.*, 14 USPQ2d 1871 (Fed. Cir. 1990).

The burden of establishing a *prima-facie* case of anticipation resides with the U.S. Patent and Trademark Office. *Ex parte Skinner*, 2 USPQ2d 1788, 1788-1789 (Bd. Pat. Int. 1986) (holding that the examiner failed to establish *prima-facie* case of anticipation). The examiner has "the burden of proof . . . to produce the factual basis for its rejection of an application under Sections 102 or 103." *In re Piasecki*, 223 USPQ 785, 788 (Fed. Cir. 1984) (quoting *In re Warner*, 154 USPQ 173, 177 (CCPA 1967)). Only if that burden is met, does the burden of going forward shift to the applicant.

The Examiner's Rejections

The examiner rejected claims 1, 3-7, 12-19, and 24 under 35 U.S.C. §102(e) as being anticipated by Tadokoro. It is the position of the examiner that the Tadokoro reference discloses each and every element and meets each and every limitation set forth in claims 1, 3-7, 12-19, and 24. The examiner's rejections are improper in that Tadokoro fails to disclose elements and limitations that are specifically required by the rejected claims. Consequently, the examiner has failed to establish the required *prima-facie* case of anticipation.

Turning now to the present invention, each of claims 1 and 3-7 requires that the translation apparatus comprise a first elongate gear rack (e.g., 20) and a first elongate guide member (e.g., 50) that is **integral** with the first elongate gear rack. See also Figures 1-3 of the currently pending application. The Tadokoro device does not meet this limitation. To the contrary, Tadokoro describes **separate** gear racks 32 and guide members 8, and they are shown as separate members in the drawings of the Tadokoro patent. See, for example, Figures 20 and 22 of Tadokoro. Moreover, in col. 14, lines 9-13, Tadokoro describes that the rack members 32 are "disposed so as to engage the upper and lower guide rails 8, 8." That Tadokoro describes the rack members 32 as being "disposed to engage" the upper and lower guide rails 8 means that they are separate, not integral, elements. Significantly, the examiner has never identified any language or drawing figure in Tadokoro that contradicts this fact. Stated another way, Tadokoro's two-piece guide member and gear rack arrangement teaches away from the one-piece, integral arrangement of the present invention.

The Appellants made the foregoing points in their response to the first office action, only to have them mis-understood by the examiner. That is, in the "Response to Arguments" section of the final office action, the examiner responded by erroneously asserting that Appellants must show, e.g., by comparative testing or results, "that the guide member and gear rack of Tadokoro would yield (*sic*, would not yield) similar results and advantages as those purported by Appellants on page 10." See, for example, page 3, section 4 of the examiner's final office action. The examiner's position is unsustainable in that it does not represent the test for anticipation. Anticipation requires an identity of elements and limitations. Tadokoro does not contain those elements and limitations. Therefore, Tadokoro cannot anticipate. That is, each of claims 1 and 3-7 requires a guide member 50 that is **integral** with the guide rail 20. Tadokoro's guide rails 8 are **separate** from his gear racks 32. Therefore, Tadokoro cannot anticipate any of claims 1 and 3-7 as a matter of law.

Perhaps recognizing that Tadokoro fails to disclose a guide member that is integral with a gear rack, the examiner, on page 4 of the final office action, asserts that the term "integral" does not

necessarily mean one piece. Appellants disagree. The term integral, as used in the currently pending claims means just that, i.e., that the guide member is formed from the same member as the gear rack. This arrangement is disclosed in the specification and is responsible for a significant advantage of the invention, i.e., that there is no need to separately align the gear rack and guide member. While the examiner asserts that the courts have defined integral to mean "rigidly secured, fastened or welded," the examiner provides no citation of any case to support his statement. Even if he did, such a citation would not be controlling in this case, as claim terms are to be construed in light of the teachings of the specification. See, for example, *CVI/Beta Ventures, Inc. v. Tura LP*, 42 USPQ2d 1577 (Fed. Cir. 1997). Reference to the currently pending specification makes clear that the guide member and gear racks are formed from the same member, thus giving meaning to the term "integral" as that term is used in the currently pending claims. See, for example, the description contained at page 7, lines 27-30:

> ". . .since the lateral positioning of the cartridge access device 12 is provided by the guide member portions 50 and 52 provided on the first and second elongate gear racks 20 and 22."

and on page 10, lines 16-20:

> "The first or lower elongate gear rack 20 also may be provided with an elongate guide member 50 which, in one preferred embodiment, may take the form of a turned-up edge of the elongate gear rack 20, as is also best seen in Figure 2."

and on page 11, lines 31-35 (when discussing an example embodiment):

> ". . .both the lower and upper gear racks 20 and 22 are fabricated from sheet metal with the respective guide member portions 50 and 52 thereof comprising up-turned and down-turned edge portions, respectively."

In summation, the Tadokoro reference fails to disclose each and every element set forth in claim 1. That is, Tadokoro does not disclose at least:

> "Translation apparatus for moving a cartridge access device along a displacement path, comprising:
>
> a first elongate gear rack aligned along the displacement path, said first elongate gear rack having a first end and a second end;
>
> a first elongate guide member integral with said first elongate gear rack and extending

along the displacement path substantially between the first and second ends of said first elongate gear rack;

a first bearing mounted to the cartridge access device, said first bearing engaging said first elongate guide member;

a second elongate gear rack aligned along the displacement path and positioned in spaced-apart relation to said first elongate gear rack, said second elongate gear rack having a first end and a second end;

a first drive pinion mounted to the cartridge access device, said first drive pinion engaging said first elongate gear rack;

a second drive pinion mounted to the cartridge access device, said second drive pinion engaging said second elongate gear rack; and

pinion drive apparatus operatively associated with said first and second drive pinions, said pinion drive apparatus rotating said first and second drive pinions to move the cartridge access device between the first and second ends of said first and second elongate gear racks."

Claim 3 is allowable on further independent grounds in that Tadokoro does not disclose the translation apparatus as defined by claim 1, wherein the first elongate guide member comprises "first and second opposed bearing surfaces and wherein said first bearing mounted to the cartridge access device slidably engages the first and second opposed bearing surfaces" of the first elongate guide member, as set forth in claim 3. Tadokoro's vertical guide member is guided along the guide member 8 by wheels 33, not by slidable engagement. See Figure 22 of Tadokoro. Because Tadokoro does not separately meet the limitations of claim 3, Tadokoro cannot anticipate claim 3.

Claim 4 is allowable on further independent grounds in that the Tadokoro reference does not disclose the translation apparatus as defined by claim 3, wherein the second elongate gear rack includes "a second elongate guide member that extends along the displacement path" and wherein the translation

apparatus further comprises "a bearing mounted to the cartridge access device, the second bearing engaging said second elongate guide member," as set forth in claim 4. Here again, any comparison of claim 4 with Tadokoro is inapt since Tadokoro's gear rack 32 is not a guide member. That is, since Tadokoro gear rack is not a guide member, there is no starting point for determining whether Tadokoro's gear rack includes "a second elongate guide member" as that term is to be construed in the context of claim 4. Tadokoro cannot anticipate claim 4, because Tadokoro fails to meet the additional structural limitations recited in claim 4.

Claim 5 is allowable on further independent grounds in that Tadokoro does not disclose the translation apparatus as defined by claim 4, wherein the second elongate guide member comprises "first and second opposed bearing surfaces and wherein said second bearing mounted to the cartridge access device slidably engages the first and second opposed bearing surfaces" of the second elongate guide member as set forth in claim 5. Tadokoro's vertical guide member is guided along the guide member 8 by wheels 33, not by slidable engagement. See Figure 22 of Tadokoro. Accordingly, Tadokoro cannot anticipate claim 6.

Claim 6 is allowable on further independent grounds in that the Tadokoro reference does not disclose the translation apparatus as defined by claim 5, further comprising a "third bearing mounted to the cartridge access device, said third bearing contacting said first elongate gear rack" as set forth in claim 6. Tadokoro's gear rack 32 does not provide a guidance function nor does Tadokoro disclose a bearing that contacts his gear rack. The failure of Tadokoro to disclose a bearing that contacts a gear rack means that Tadokoro cannot anticipate claim 6.

Claim 7 is allowable on further independent grounds in that Tadokoro does not disclose the translation apparatus of claim 6, wherein the third bearing comprises a wheel. Again, Tadokoro discloses no third bearing that contacts a gear rack, much less a wheel that contacts a gear rack. Instead, Tadokoro's wheel contacts his guide member 8, not his gear rack 32. Therefore, Tadokoro cannot anticipate claim 7.

Claim 12 is believed to be allowable on further independent grounds in that the Tadokoro reference does not disclose the translation apparatus of claim 1, wherein the pinion drive apparatus comprises "a motor. . . a worm attached to the shaft of the motor and a worm gear operatively connected to said first and second drive pinions. . ." the worm gear also engaging the worm as set forth in claim 12. Tadokoro discloses a motor 34 that drives the pinions 41 via a drive belt 36. See Figure 20 of Tadokoro. A drive belt 36 is not a worm and worm gear. Since these additional limitations of claim 12 are not met, Tadokoro cannot anticipate claim 12.

Independent claim 13 contains similar limitations that are not met by the Tadokoro reference. Specifically, claim 13 requires a "first elongate gear rack" and a "first elongate guide member integral with said first elongate gear rack." Again, Tadokoro's guide members 8 are not integral with his gear racks 32. Indeed, Tadokoro specifically teaches away from such an arrangement by stating that the rack members 32 engage the rails 8. Clearly, Tadokoro's guide members cannot be said to be integral with the gear rack, as specifically required by claim 13. Again, because the Tadokoro reference does not disclose an "elongate guide member" that is "integral with" a gear rack, Tadokoro cannot anticipate claim 13. Consequently, claim 13 is also allowable under Section 102(e).

Stated another way, independent claim 13 is allowable over Tadokoro in that Tadokoro fails to disclose at least:

> "Translation apparatus for moving a cartridge access device along a displacement path, comprising:
>
> a first elongate gear rack aligned along said displacement path, said first elongate gear rack having a first end and a second end;
>
> a first elongate guide member integral with said first elongate gear rack so that said first elongate guide member extends along the displacement path ;
>
> a second elongate guide member extending along the displacement path and positioned in spaced-apart relation to said first elongate guide member;

a first drive pinion mounted to the cartridge access device, said first drive pinion engaging said first elongate gear rack;

a first bearing mounted to the cartridge access device, said first bearing engaging said first elongate guide member;

a second bearing mounted to the cartridge access device, said second bearing engaging said second elongate guide member; and

pinion drive apparatus operatively associated with said first drive pinion, said pinion drive apparatus rotating said first drive pinion to move the cartridge access device along the displacement path."

Claim 14 is allowable on further independent grounds in that claim 14 depends from claim 13, which is allowable.

Claim 15 is allowable on further independent grounds in that Tadokoro does not disclose the translation apparatus as defined by 14, wherein the second elongate guide member "comprises an integral portion of said second elongate gear rack" as set forth in claim 15. Tadokoro's guide members 8 are not integral with his gear racks 32. In fact, Tadokoro specifically teaches away from such an arrangement by stating that the rack members 32 **engage** the rails 8, clearly implying that the two comprise separate, not integral, components. Again, because the Tadokoro reference does not disclose a "second elongate guide member" that comprises an "integral portion of said second elongate gear rack," Tadokoro cannot anticipate claim 15.

Claim 16 is allowable on further independent grounds in that Tadokoro does not disclose the translation apparatus as defined by claim 14, wherein the first elongate guide member comprises "first and second opposed bearing surfaces and wherein said first bearing mounted to the cartridge access device slidably engages the first and second opposed bearing surfaces" of the first elongate guide member, as set forth in claim 16. Tadokoro's vertical guide member is guided along the guide member

8 by wheels 33, not by slidable engagement. See Figure 22 of Tadokoro. Because Tadokoro does not separately meet the limitations of claim 16, Tadokoro cannot anticipate claim 16.

Claim 17 is allowable on further independent grounds in that Tadokoro does not disclose the translation apparatus as defined by claim 16, wherein the second elongate guide member comprises "first and second opposed bearing surfaces and wherein said second bearing mounted to the cartridge access device slidably engages the first and second opposed bearing surfaces" of the second elongate guide member as set forth in claim 17. Tadokoro's vertical guide member is guided along the guide member 8 by wheels 33, not by slidable engagement. See Figure 22 of Tadokoro. Accordingly, Tadokoro cannot anticipate claim 17.

Claim 18 is allowable on further independent grounds in that the Tadokoro reference does not disclose the translation apparatus as defined by claim 17, further comprising a "third bearing mounted to the cartridge access device, said third bearing contacting said first elongate gear rack" as set forth in claim 18. Tadokoro's gear rack 32 does not provide a guidance function nor does Tadokoro disclose a bearing that contacts his gear rack. The failure of Tadokoro to disclose a bearing that contacts a gear rack means that Tadokoro cannot anticipate claim 18.

Claim 19 is allowable on further independent grounds in that Tadokoro does not disclose the translation apparatus of claim 18, wherein the third bearing comprises a wheel. Again, Tadokoro discloses no third bearing that contacts a gear rack, much less a wheel that contacts a gear rack. Therefore, Tadokoro cannot anticipate claim 19.

Independent claim 24 contains similar limitations that are not met by the Tadokoro reference. Specifically, claim 24 requires "elongate gear rack means" and "guide means integral with said elongate gear rack." Again, Tadokoro's guide members 8 are not integral with his gear racks 32. In fact, Tadokoro specifically teaches away from such an arrangement by stating that the rack members 32 engage the rails 8, clearly implying that the two comprise separate components. Because the Tadokoro reference does not disclose "guide means" that is "integral with" an "elongate gear rack," Tadokoro

cannot anticipate claim 24. Consequently, claim 24 is also allowable under Section 102(e).

Stated another way, independent claim 24 is allowable over Tadokoro in that Tadokoro fails to disclose at least:

"Translation apparatus for moving a cartridge access device along a displacement path, comprising:

an elongate gear rack aligned along the displacement path;

guide means integral with said elongate gear rack for guiding the cartridge access device along the displacement path;

a drive pinion mounted to the cartridge access device, said drive pinion engaging said elongate gear rack; and

pinion drive means operatively associated with said drive pinion for rotating said first drive pinion to move the cartridge access device along the displacement path."

CONCLUSION

The Tadokoro reference does not disclose at least a guide member that is integral with a gear rack. Therefore, Tadokoro cannot be used to establish the required *prima-facie* case of anticipation under Section 102. Accordingly, Appellants urge the Board to reverse the examiner's rejections of claims 1, 3-7, 12-19, and 24.

Respectfully submitted,

DAHL & OSTERLOTH, L.L.P.

By: _____
Bruce E. Dahl
Registration No. 33,670
555 Seventeenth Street, Suite 3405
Denver, CO 80202
(303) 291-3200

Date: 8-8-02

APPENDIX A

1. Translation apparatus for moving a cartridge access device along a displacement path, comprising:

a first elongate gear rack aligned along the displacement path, said first elongate gear rack having a first end and a second end;

a first elongate guide member integral with said first elongate gear rack and extending along the displacement path substantially between the first and second ends of said first elongate gear rack;

a first bearing mounted to the cartridge access device, said first bearing engaging said first elongate guide member;

a second elongate gear rack aligned along the displacement path and positioned in spaced-apart relation to said first elongate gear rack, said second elongate gear rack having a first end and a second end;

a first drive pinion mounted to the cartridge access device, said first drive pinion engaging said first elongate gear rack;

a second drive pinion mounted to the cartridge access device, said second drive pinion engaging said second elongate gear rack; and

pinion drive apparatus operatively associated with said first and second drive pinions, said pinion drive apparatus rotating said first and second drive pinions to move the cartridge access device between the first and second ends of said first and second elongate gear racks.

2. Claim 2 is canceled without prejudice to the subject matter contained therein.

3. The translation apparatus of claim 1, wherein said first elongate guide member comprises first and second opposed bearing surfaces and wherein said first bearing mounted to the

cartridge access device slidably engages the first and second opposed bearing surfaces of said first elongate guide member.

4. The translation apparatus of claim 3, wherein said second elongate gear rack includes a second elongate guide member that extends along the displacement path substantially between the first and second ends of said second elongate gear rack and wherein said translation apparatus further comprises a second bearing mounted to the cartridge access device, said second bearing engaging said second elongate guide member.

5. The translation apparatus of claim 4, wherein said second elongate guide member comprises first and second opposed bearing surfaces and wherein said second bearing mounted to the cartridge access device slidably engages the first and second opposed bearing surfaces of said second elongate guide member.

6. The translation apparatus of claim 5, further comprising a third bearing mounted to the cartridge access device, said third bearing contacting said first elongate gear rack and allowing the cartridge access device to move along the displacement path.

7. The translation apparatus of claim 6, wherein said third bearing comprises a wheel.

8. Translation apparatus for moving a cartridge access device along a displacement path, comprising:

a first elongate gear rack aligned along the displacement path, said first elongate gear rack having a first end and a second end;

a second elongate gear rack aligned along the displacement path and positioned in

spaced-apart relation to said first elongate gear rack, said second elongate gear rack having a first end and a second end;

a third elongate gear rack positioned in generally parallel, spaced-apart relation to said first elongate gear rack;

a fourth elongate gear rack positioned in generally parallel, spaced-apart relation to said second elongate gear rack so that said first, second, third, and fourth elongate gear racks define a generally rectangular, parallelopiped configuration with said first and third elongate gear racks defining a bottom side of the generally rectangular, parallelopiped configuration and said second and fourth elongate gear racks defining a top side of the generally rectangular, parallelopiped configuration;

a first drive pinion mounted to the cartridge access device, said first drive pinion engaging said first elongate gear rack;

a second drive pinion mounted to the cartridge access device, said second drive pinion engaging said second elongate gear rack; and

pinion drive apparatus operatively associated with said first and second drive pinions, said pinion drive apparatus rotating said first and second drive pinions to move the cartridge access device between the first and second ends of said first and second elongate gear racks.

9. The translation apparatus of claim 8, further comprising:

a third drive pinion mounted to the cartridge access device and operatively associated with said pinion drive apparatus, said third drive pinion engaging said third elongate gear rack; and

a fourth drive pinion mounted to the cartridge access device and operatively associated with said pinion drive apparatus, said fourth drive pinion engaging said fourth elongate gear rack.

10. The translation apparatus of claim 9, further comprising:

a fifth elongate gear rack having a first end and a second end, the first end of said fifth elongate gear rack being mounted adjacent the second end of said first elongate gear rack so that said fifth elongate gear rack is aligned along the displacement path; and

a sixth elongate gear rack having a first end and a second end, the first end of said sixth elongate gear rack being mounted adjacent the second end of said second elongate gear rack so that said sixth elongate gear rack is aligned along the displacement path.

11. The translation apparatus of claim 10, further comprising:

a seventh elongate gear rack having a first end and a second end, the first end of said seventh elongate gear rack being mounted adjacent the second end of said third elongate gear rack so that said seventh elongate gear rack is aligned along the displacement path; and

an eighth elongate gear rack having a first end and a second end, the first end of said eighth elongate gear rack being mounted adjacent the second end of said fourth elongate gear rack so that said eighth elongate gear rack is aligned along the displacement path.

12. The translation apparatus of claim 1, wherein said pinion drive apparatus comprises:

a motor having a shaft;

a worm attached to the shaft of said motor; and

a worm gear operatively connected to said first and second drive pinions, said worm gear mounted to engage said worm mounted to the shaft of said motor.

13. Translation apparatus for moving a cartridge access device along a displacement path, comprising:

a first elongate gear rack aligned along said displacement path, said first elongate gear

rack having a first end and a second end;

a first elongate guide member integral with said first elongate gear rack so that said first elongate guide member extends along the displacement path;

a second elongate guide member extending along the displacement path and positioned in spaced-apart relation to said first elongate guide member;

a first drive pinion mounted to the cartridge access device, said first drive pinion engaging said first elongate gear rack;

a first bearing mounted to the cartridge access device, said first bearing engaging said first elongate guide member;

a second bearing mounted to the cartridge access device, said second bearing engaging said second elongate guide member; and

pinion drive apparatus operatively associated with said first drive pinion, said pinion drive apparatus rotating said first drive pinion to move the cartridge access device along the displacement path.

14. The translation apparatus of claim 13, further comprising:

a second elongate gear rack aligned along said displacement path and positioned in spaced-apart relation to said first elongate gear rack; and

a second drive pinion mounted to the cartridge access device, said second drive pinion engaging said second elongate gear rack.

15. The translation apparatus of claim 14, wherein said second elongate guide member comprises an integral portion of said second elongate gear rack.

16. The translation apparatus of claim 14, wherein said first elongate guide member

comprises first and second opposed bearing surfaces and wherein said first bearing mounted to the cartridge access device slidably engages the first and second opposed bearing surfaces of said first elongate guide member.

17. The translation apparatus of claim 16, wherein said second elongate guide member comprises first and second opposed bearing surfaces and wherein said second bearing mounted to the cartridge access device slidably engages the first and second opposed bearing surfaces of said second elongate guide member.

18. The translation apparatus of claim 17, further comprising a third bearing mounted to the cartridge access device, said third bearing contacting said first elongate gear rack and allowing the cartridge access device to move along the displacement path.

19. The translation apparatus of claim 18, wherein said third bearing comprises a wheel.

20. The translation apparatus of claim 18, further comprising:

a third elongate gear rack positioned in generally parallel, spaced-apart relation to said first elongate gear rack; and

a fourth elongate gear rack positioned in generally parallel, spaced-apart relation to said second elongate gear rack so that said first, second, third, and fourth elongate gear racks define a generally rectangular, parallelopiped configuration with said first and third elongate gear racks defining a bottom side of the generally rectangular, parallelopiped configuration and said second and fourth elongate gear racks defining a top side of the generally rectangular, parallelopiped configuration.

21. The translation apparatus of claim 20, further comprising:

a third drive pinion mounted to the cartridge access device and operatively associated with said pinion drive apparatus, said third drive pinion engaging said third elongate gear rack; and

a fourth drive pinion mounted to the cartridge access device and operatively associated with said pinion drive apparatus, said fourth drive pinion engaging said fourth elongate gear rack.

22. The translation apparatus of claim 21, further comprising:

a fifth elongate gear rack having a first end and a second end, the first end of said fifth elongate gear rack being mounted adjacent the second end of said first elongate gear rack so that said fifth elongate gear rack is aligned along the displacement path; and

a sixth elongate gear rack having a first end and a second end, the first end of said sixth elongate gear rack being mounted adjacent the second end of said second elongate gear rack so that said sixth elongate gear rack is aligned along the displacement path.

23. The translation apparatus of claim 22, further comprising:

a seventh elongate gear rack having a first end and a second end, the first end of said seventh elongate gear rack being mounted adjacent the second end of said third elongate gear rack so that said seventh elongate gear rack is aligned along the displacement path; and

an eighth elongate gear rack having a first end and a second end, the first end of said eighth elongate gear rack being mounted adjacent the second end of said fourth elongate gear rack so that said eighth elongate gear rack is aligned along the displacement path.

24. Translation apparatus for moving a cartridge access device along a displacement path, comprising:

an elongate gear rack aligned along the displacement path;

guide means integral with said elongate gear rack for guiding the cartridge access device along the displacement path;

a drive pinion mounted to the cartridge access device, said drive pinion engaging said elongate gear rack; and

pinion drive means operatively associated with said drive pinion for rotating said first drive pinion to move the cartridge access device along the displacement path.

APPENDIX B

Reference Relied on By Examiner in his Final Response.

A copy of the following reference is attached hereto for the Board's convenience:

Tadokoro, *et al.*, U.S. Patent No. 6,116,877, issued December 26, 2000, entitled "Cassette Auto Changer System Including Tape Signal Reading Means and Selection Means for Selecting Between a Plurality of Cassettes."